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ABSTRACT

A metric education project is described and evaluated. The project attempted to integrate a variety of components including grade objectives and activities, teacher training, and public relations. The report describes the model school and the target population, lists the metric education goals, and describes the project events and procedures. Results indicate that students learned a significant amount of metric measurement skills and had positive attitudes toward the use of metric measures. (MK)

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FINAL EVALUATION REPORT
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Henderson, Kentucky

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METRIC EDUCATION TODAY: FINAL EVALUATION

With the increase in the "lack of interest" displayed by public agencies towards the U.S. change to the metric system (SI), it becomes imperative for schools to create a wholly different kind of incentive for classroom teachers and school learners to move progressively in metric education. That is to say, it has become somewhat burdensome to fantasize and work diligently to justify the fantasy that the U.S. will, in fact, be predominantly a metric nation. Teachers find it increasingly more difficult to justify when local industry is still in the customary measurement mode. School learners find it to be just some more "stuff" they have to learn in school in order to make everybody happy with them. Where, then, do teachers and learners get the needed impetus to learn this "stuff"? What do teachers do when the battle cry is for a return to the "basic" ideas and strategies of days gone by--when metrics was seldom emphasized? What can a school body do? Where are the leaders? Suffice to say, the Bend Gate School/Henderson County have given renewed hope in the direction of school learning and metric education. The Bend Gate School/Henderson County is, indeed, a model school.

The Nature of the Project

The goal of this project and, probably, the principle reason for the grant was to demonstrate to the larger community of the United States how a school becomes alive with the notion that metric education is very much a part of the school curricula for today and tomorrow. Other projects have demonstrated that school learners can learn metric as an integral part of the

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school curricula. These projects often tended to be lock-step with the creation of grade objectives and activities. Projects often did something with the community or trained teachers or created public relations gimmicks. In a word, these projects were limited and segmented. The Bend Gate/Henderson County effort was to demonstrate a smooth integration of all these components. The Bend Gate/Henderson County effort demonstrated that the effort itself is complete with learning experiences that were more than metrics.

The Model School

This project was targeted at involving the educable mentally handicapped learner, the average learner, the gifted learner, as well as interschool teaming across school levels. This meant that the school staff had to produce a central scheme that would make it logical and beneficial for various groups to participate productively. A philosophical position had to be established in order to facilitate each subgroup's independent efforts. Such an approach was easily found and agreed upon.

The school faculty realized that metrics in itself was not really exciting enough to get everybody involved over the period of a year. The faculty also realized that there were more important things to consider than to "hype" learners with rigid procedures that were unlike the world in which the children lived or in which they would be living. The approach had to be more than simply teaching metrics and hoping that all concerned would remember enough to function on post tests, et cetera. What, then, was the problem to be solved? After brainstorming, the problem was obvious. How can teachers inspire learners adequately to learn metrics and pass it on to others that may be in their school, community, or other schools and communities? It seemed clear, also, that people have their most learning when they are in the process of resolving

a problem from which they can be advantaged. Was the problem of determining ways to metricate their school, community, and other schools meaningful or realistic enough a challenge? What procedures were used to maximize this effort? Read on.

The Population

The proposed target area for this project was a fifty-mile radius around Henderson, Kentucky, that included a small portion of three states. The schools within this area were the primary targets. The local Bend Gate/ Henderson County community was next with the entire target community area considered, finally. This meant that the Bend Gate School had to metricate itself, first. It also meant the project participants (the Bend Gate School and Project Director) had to elicit interschool and interagency cooperation in order to reach the project objectives. The system for reaching such a vast audience is indeed a challenge. However, it was one that was reasonably met by the faculty and student body of the Bend Gate School/Henderson County.

Metric Education Goals

The participants in this project had eight project goals to meet:

1. Identify objectives for each grade level including the gifted learner and the less facile learner (EMH classes).
2. Identify strategies for meeting the needs of the aforementioned learner groups.
3. Metricate students at this level.
4. Train teachers in knowing what goals are obtainable and how to progress toward these goals.
5. Train teachers concerning the impact metrics will have upon job performances in different trades and careers.

6. Train teachers in issuing the challenge for real problem solving, with the problem in this case being, "how can we make everyone, (students, parents, community) in the Bend Gate School more aware of the importance of metrics."
7. Train teachers in how to actively involve students in real metric problem solving as it relates to everyday living.
8. Train teachers how to hold workshops, for other teachers, both within and outside the school system.

All of the above goals are consistent with those of the United States Metric Education Program. All official notations and definitions were in accord with the International System of Measures (SI).

The project designers believed that if the Model school approach proposed for the Bend Gate School/Henderson County was implemented as planned, the following experiences would be provided:

Students

1. will learn the Metric System (SI).
2. will use metrics in reading problems, expand in terminology and computation.
3. will understand how metrics are used.
4. will learn that they are the key in educating the community.
5. will demonstrate metrics in other schools, civic activities, meetings, et cetera.
6. will learn that they are functional entities.
7. will learn career awareness.
8. will learn consumer information.
9. will cooperate with high school students in implementing metric project activities.

Teachers

1. will learn how to meet special needs of students.
2. will learn how to encourage students to assume responsibility.
3. will learn how to increase the learning of metrics and measurement.
4. will learn how to increase community awareness through Parent-Teachers' Association meetings.
5. will learn how to increase consumer awareness through television programs.
6. will learn how to increase career awareness.
7. will learn how to involve themselves in teacher training.

Project Events and Procedures

Before the academic year began, one teacher from each level K - 6 and a teacher from the "special education" component met to determine grade level objectives and activities. During the first sessions, this team of teachers (along with the principal and project director) brainstormed some of the ways that the school learners could help in resolving the problem "How can we make everyone, (students, parents, community) in the Benu Gate School more aware of the importance of metrics?" The team agreed that each grade level would determine some project that would address such a problem. Also, each teacher would keep a log of the problems and related strategies in resolving the problems and related strategies in resolving the problem to be incorporated in a handbook at tne end of the year.

The Metric Problem Solving Projects for the school were as follows:

October 1978

Temperature (1st grade)

Tallest person in school (special education)

Bridge to playground on school campus (2nd grade)

Swing measurement (3rd grade)

Plant growth (4th grade)

Newspaper bundles for fund raising (5th grade)

Cookbook (6th grade)

Newspaper for school (6th grade)

November 1978

Temperature (1st grade)

Olympic track (special education)

Building directory (4th grade)

Bridge to playground (2nd grade)

Metric meal (1st grade)

Thanksgiving baskets (5th grade)

Newspaper bundles (5th grade)

Cookbook (6th grade)

December 1978

Temperature (1st grade)

Newspaper bundles (5th grade)

Tallest parent (3rd grade)

Tree ornament (5th grade)

School newspaper (6th grade)

January 1979

Temperature (1st grade)

Newspaper bundles (5th grade)

Slogan buttons (3rd grade)

Doctors and Nurses measure metric (2nd grade)

February 1979

Temperature (1st grade)

Newspaper bundles (5th grade)

Poster contest (2nd grade)

Class weigh-in (1st grade)

Measurement of average person (5th grade)

School newspaper (6th grade)

March 1979

Temperature (1st grade)

Newspaper bundles (5th grade)

Widest door (Kindergarten)

Fartherest distance to lunchroom (2nd grade)

Weight of pencil shavings (special education)

Liters class drinks (3rd grade)

School newspaper (6th grade)

April 1979

Temperature (1st grade)

Newspaper bundles (5th grade)

Longest foot (Kindergarten)

Container of fish (special education)

School newspaper (6th grade)

There were cooking demonstrations given by the students throughout the year. These students, with their teacher, would go to a civic function (Lion's Club, et cetera) and demonstrate a particular recipe, share it with the audience, and offer for sale the recipe booklet and utensil kit enclosed in a metric-sized bag--sewn by the students.

The cooks were sometimes accompanied by the Metric Muppets or the metric variety show. Several of the variety shows were given throughout the year--some within the school and some around the area. All of the activities were video taped for sharing with other schools and communities.

The culminating activity for the year was the Metric Fair. Invitations were extended and accepted of neighboring school systems and the community at large to attend the fair at Bend Gate School. The fair was well attended.

A pretest and a post test were given to all Bend Gate students. An attitudinal instrument was administered to parents as well as the adults who attended the 'shows' throughout the year. Results were favorable in every case.

Project Results

The data provided by the pre and post tests indicate that the Bend Gate students have learned a significant amount of metric measurement skills during the year. This can be attributed to the projects, bulletin boards, and in-class activities that the students participated in during the year. Also, the Bend Gate students have very positive attitudes towards the use of metric measures --they found them "to be easier."

The shows, videotapes, booklet, news media coverage, and the Fair is a fair measure of the Bend Gate School/Henderson County project efforts towards disseminating the successful approach. There are letters on file plus other testimonials indicating that what Bend Gate students did for community and other schools is held in high esteem.

An observation made regarding the participating learners at Bend Gate is their "sense of responsibility." The students are now communicating with others much more successfully. The teachers feel that they have put a lot of

themselves into this project, and they sincerely believe the school children received a lot in return. The teachers believe that in carrying out the many tasks for the year that the Bend Gate school children learned more than metrics, much more.

During the course of the Metric Fair, the Bend Gate student body went through the fair offerings on a practice run before "outsiders" were permitted on the following day. Candy was given as a prize for accurate estimations. If the "candy test" can be used to any degree as a measure of knowledge and skill, the "candy test" indicated that Bend Gate learners have a significantly higher level of skill with metric measurement concepts than the children from visiting schools. The "prize" coffers did not have to be refilled very often for their visitors.

This project has demonstrated that school project kinds of activities are more likely to be done than an objective-based approach to learning metrics. Involving learners in the process of educating others is a very successful means of assuring that learners learn metrics themselves. Metrics for today may, in fact, be better learned if school children can use metrics to attain other ends. A model school, then, for metric education may be one that is problem-product oriented rather than one that is step-by-step objective-activity oriented. In closing, the Bend Gate School/Henderson County Project is a complete success in meeting and surpassing project goals.